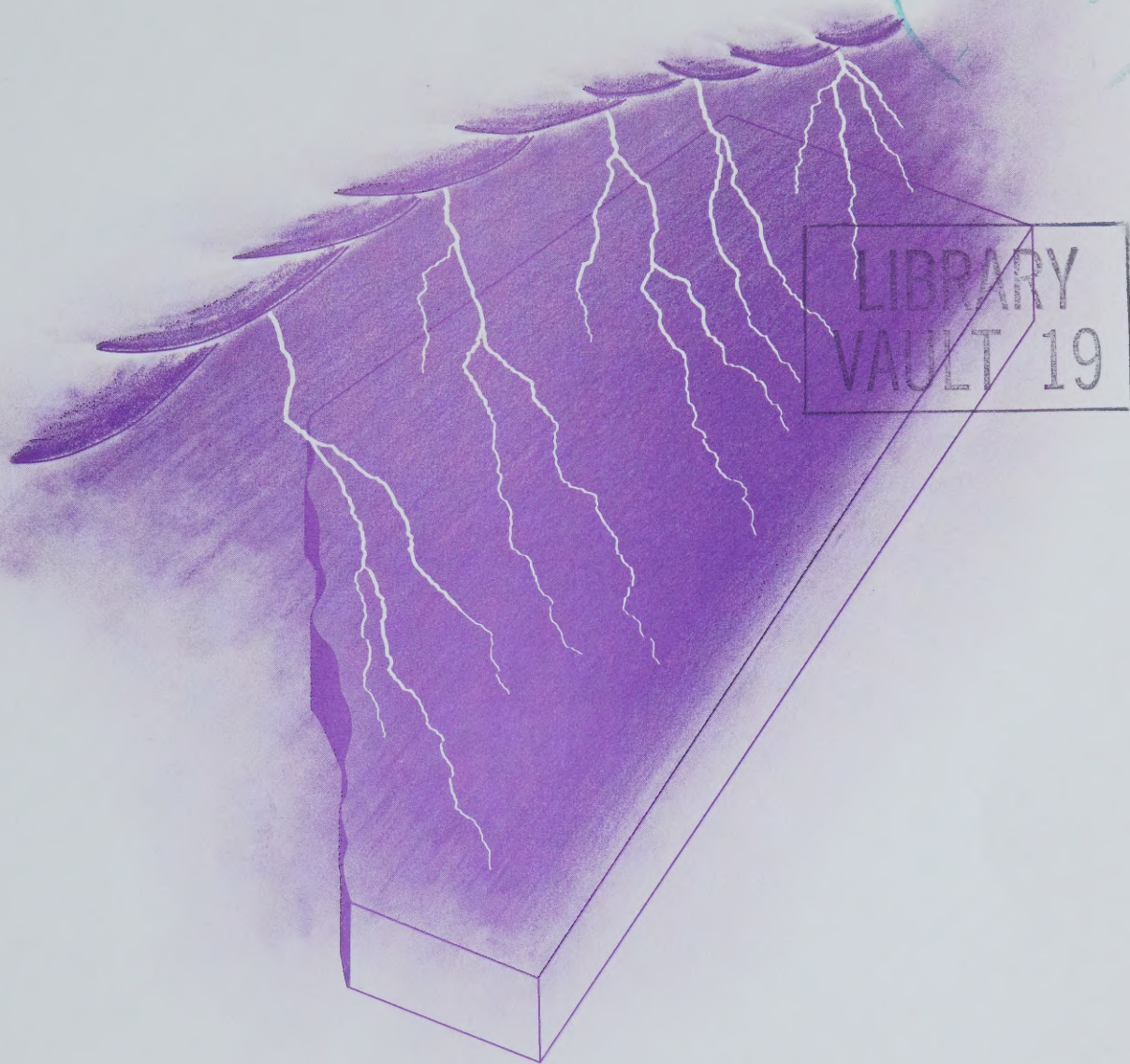
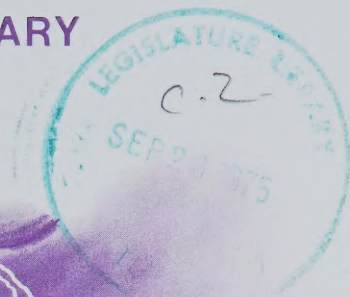


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ALBERTA FOREST SERVICE SUMMARY



LIGHTNING OVER ALBERTA MAY - SEPTEMBER 1972


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LIGHTNING OVER ALBERTA MAY - SEPTEMBER 1972

PREPARED BY: E.V. STASHKO, METEOROLOGIST,

ALBERTA FOREST SERVICE

ABSTRACT

Monthly lightning incidence over Alberta for the months May to September, 1972, and the cumulative lightning incidence are analyzed in detail and mapped in a designated color code for quick visual impression. Written summaries accompany each map.

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INTRODUCTION

The objective of this publication is to provide a detailed analysis and summary of the 1972 May to September lightning incidence over Alberta with visual simplicity that retains maximum detail yet renders optimum interpretation of the analyzed data. It also provides a compact permanent record of countless lightning events condensed into a readily usable form for Alberta Forest Service personnel and any other interested agencies whose operations are especially weather-sensitive.

The data analyzed in this publication has been collected from two main sources:

1. About 150 lookouts of the Alberta Forest, Provincial Parks, and National Parks.
2. About 25 regular synoptic observing stations of the Atmospheric Environment Service.

The data has been carefully screened and reports with apparently glaring deficiencies have been disregarded. Any statements referring to hail activity in the "Hail Belt" are in accord with reports published by Alberta Hail Studies.

LIGHTNING SUMMARY FOR MAY, 1972

CROWSNEST - BOW RIVER - ROCKY FORESTS: Activity was at a minimum with no lightning occurring over the Continental Divide. One lightning day was reported over the eastern fringes of Bow and Rocky Forests as thunderheads initiating over the Divide matured in their eastward progression onto the plains area.

EDSON - WHITECOURT FORESTS: While no lightning occurred at the Divide, the eastern fringe of Edson Forest received 3 - 4 days and most of Whitecourt Forest received 3 - 5 days, with the Swan Hills portion highest at 7 days.

GRANDE PRAIRIE FOREST: No lightning occurred over most of the Forest although the eastern fringe reported 1 day.

PEACE RIVER FOREST: Again minimum lightning activity of 0 - 1 days was reported over the western sector of the Forest with the eastern fringe receiving 3 - 4 days, most at Peace River townsite located at the confluence of major river valleys.

FOOTNER LAKE FOREST: Located further east of the Divide, the Footner Forest violates the pattern of other western Forests. Maximum activity of 4 days occurred over the western half, dropping off to only 1 day over the eastern half.

SLAVE LAKE FOREST: Activity was variable with 3 - 4 day maxima along the Swan Hills nose and the flatter areas of Red Earth and Slave Lake townsite. Minima of 0 - 1 days occurred over northeastern and south-western sectors of the Forest.

LAC LA BICHE FOREST: Maximum activity of 3 days occurred over the northern and southern fringes with least activity of 1 day across the middle of the Forest.

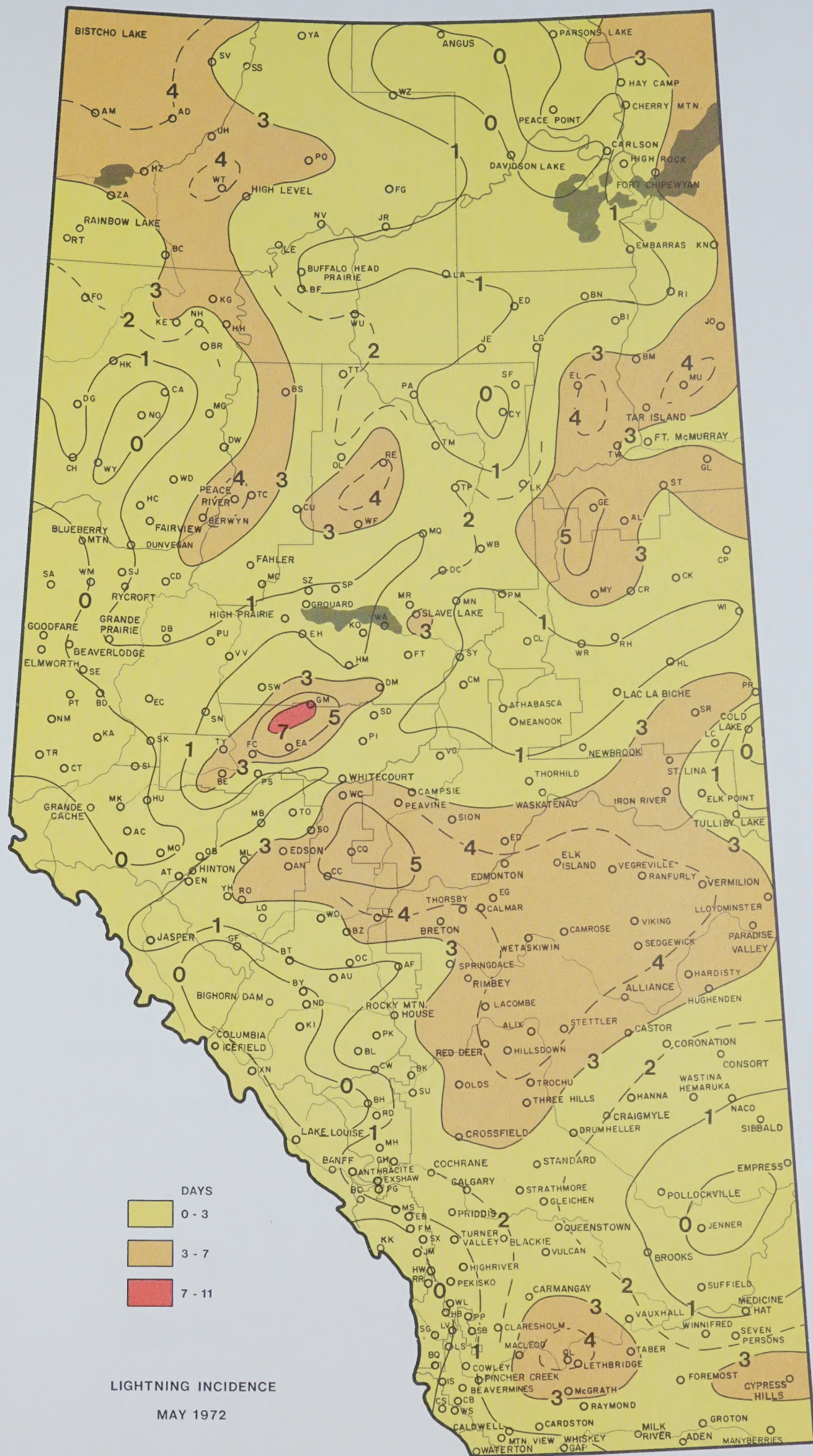
ATHABASCA FOREST: The pattern is complex. A minimum of 1 day occurred over the Birch Mountains and a maximum of 4 days mostly along the lower Athabasca valley downstream from the higher Pelican Mountains, Stoney Mountain and the Birch Mountains. The Lake Athabasca area received 3 days of lightning.

NATIONAL PARKS: Essentially no lightning occurred over Banff and Jasper National Parks and most of Wood Buffalo Park. The eastern fringe of Wood Buffalo along the Athabasca Delta received 1 day, increasing to 3 days at Lake Athabasca.

AGRICULTURAL PLAINS AREA: Thunderheads developing over the Rockies generally mature further eastward in their progression, and usually are most intense over parts of the agricultural plains area. This pattern held in May with maxima of 3 - 5 days around Lethbridge, Cypress Hills, Red Deer, Edmonton, Cold Creek and Vermilion areas.

ALBERTA ELECTRIC SPOT: 7 days at Goose Mountain Lookout, Whitecourt Forest.

ALBERTA QUIET SPOTS: Numerous (see map).



LIGHTNING SUMMARY FOR JUNE, 1972

CROWSNEST - BOW RIVER - ROCKY FORESTS: Although the Continental Divide received only 2 lightning days, this increased over the eastern fringes of these Forests to 5 days.

EDSON - WHITECOURT FORESTS: While the Grande Cache area reported 4 lightning days, this tapered off sharply eastward over most of the Edson Forest to only 1 day. Still further east, Whitecourt Forest was struck by 5 - 7 days.

GRANDE PRAIRIE FOREST: Immature thunder cells brought 0 lightning days to Torrens and Nose Mountain but maturation further east produced 5 days at Kakwa.

PEACE RIVER FOREST: Young thunderheads gave the western sector 3 days of lightning but these grew over the central and eastern sectors to yield 5 - 7 days of activity.

FOOTNER LAKE FOREST: Central areas received 7 - 9 days with a symmetrical tapering off to 5 days over the remainder of the Forest.

SLAVE LAKE FOREST: The relative patterns of May were duplicated with maximum of 7 - 9 days occurring at the Swan Hills and over the much lower, flatter areas of Red Earth and Slave Lake townsite. Elsewhere, 3 - 5 days were recorded.

LAC LA BICHE FOREST: The pattern of May was preserved with northern and southern sectors receiving 6 - 7 days and the middle a fewer 3 - 5 days of lightning.

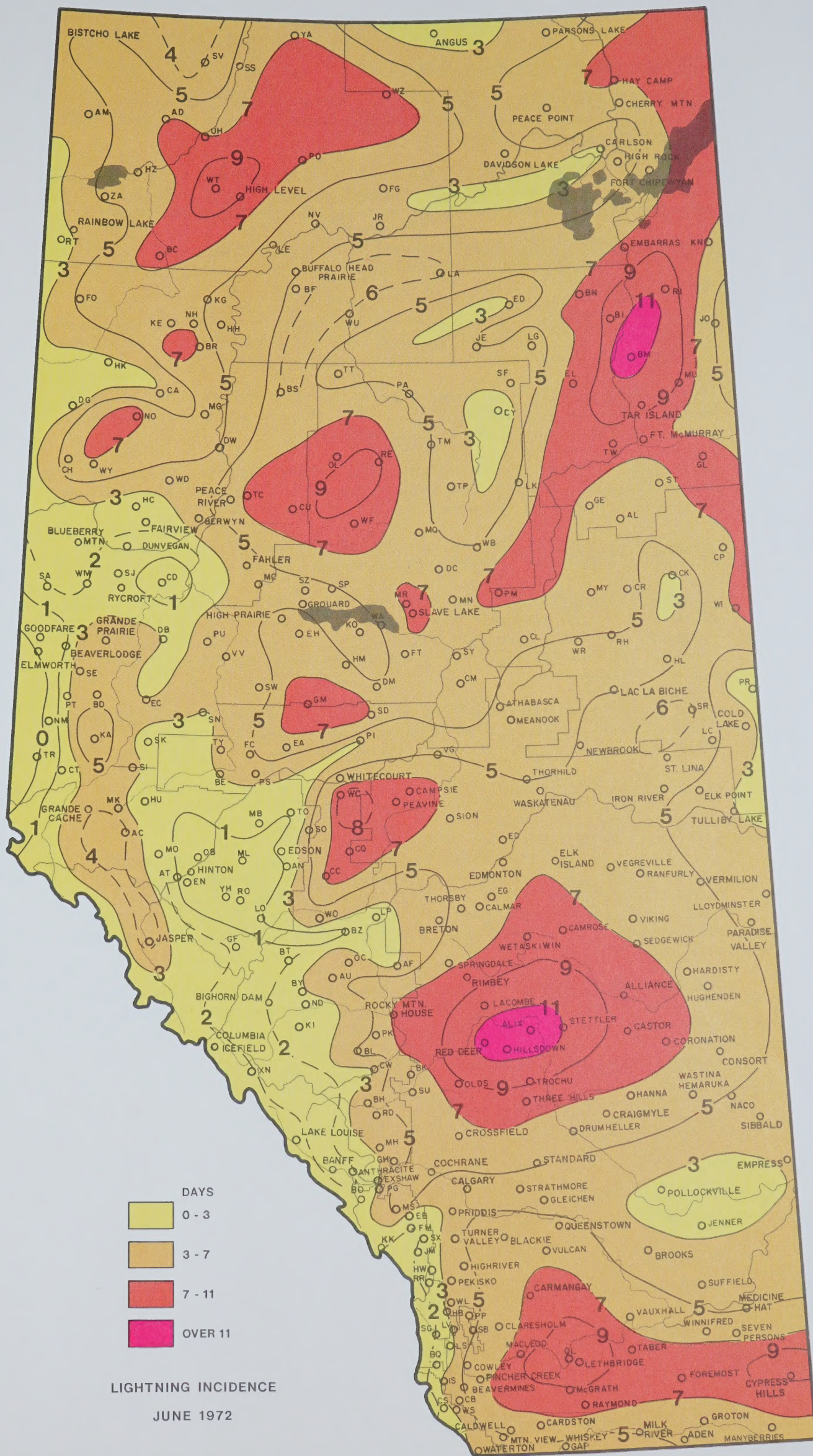
ATHABASCA FOREST: The lightning distribution of May was conserved with a maximum swath of 7 - 11 days running along the lower Athabasca River valley areas. Thunderheads apparently formed over the higher forested terrain but drifted to maturity further downstream over lower, flatter terrain. Only 3 - 5 days were observed over the Birch Mountains. Lake Athabasca areas received 7 days.

NATIONAL PARKS: There were 4 lightning days observed at Jasper and 2 days at Banff. The pattern over Wood Buffalo was 3 - 5 days over most of the Park but increasing to 6 - 7 days near the Athabasca Delta.

AGRICULTURAL PLAINS AREA: The intensification of thunderstorms in their eastward progression from the Rockies onto the Plains is strikingly obvious. Maxima of 7 - 9 days fell around the Cold Creek, Red Deer, Lethbridge, and Cypress Hills areas. A core of 11 days was observed over the traditional "Hail Belt" zone near Red Deer - Stettler. According to Alberta Hail Studies, farmer reports of hail for June, 1972, were only one - quarter the normal number and there was almost a complete lack of large hail.

ALBERTA ELECTRIC SPOTS: 11 days at Red Deer, also Bitumont Lookout, Athabasca Forest.

ALBERTA QUIET SPOTS: 0 days at Nose Mountain, and Torrens Lookouts, Grande Prairie Forest.



LIGHTNING SUMMARY FOR JULY, 1972

CROWSNEST - BOW RIVER - ROCKY FORESTS: Although the Continental Divide received only 3-4 lightning days, this increased over the eastern fringes to 7-9 days.

EDSON - WHITECOURT FORESTS: From a low of 3 lightning days at Grande Cache there was a steady eastward increase to 11-13 days over the eastern Edson Forest and majority of the Whitecourt Forest.

GRANDE PRAIRIE FOREST: Lightning days increased from a low of 5-7 days at Torrens and Nose Mountain to a high of 13 days further east at Kakwa.

PEACE RIVER FOREST: A minimum of 3-5 lightning days over the western sector grew to a maximum of 9-11 days over the central sector but faded back to only 3-5 days over the eastern sectors.

FOOTNER LAKE FOREST: Lightning activity heavily dominated the western sector of the Forest with 9-11 days. The eastern and central sectors generally received only 3-5 days of activity.

SLAVE LAKE FOREST: Again the Swan Hills heights and the contrasting lower, flatter Red Earth area were struck on 7-9 days with the remainder of the Forest only on 3-5 days.

LAC LA BICHE FOREST: The southern and northern sectors were again highest with 7-9 days and the central sector lowest at 5 days.

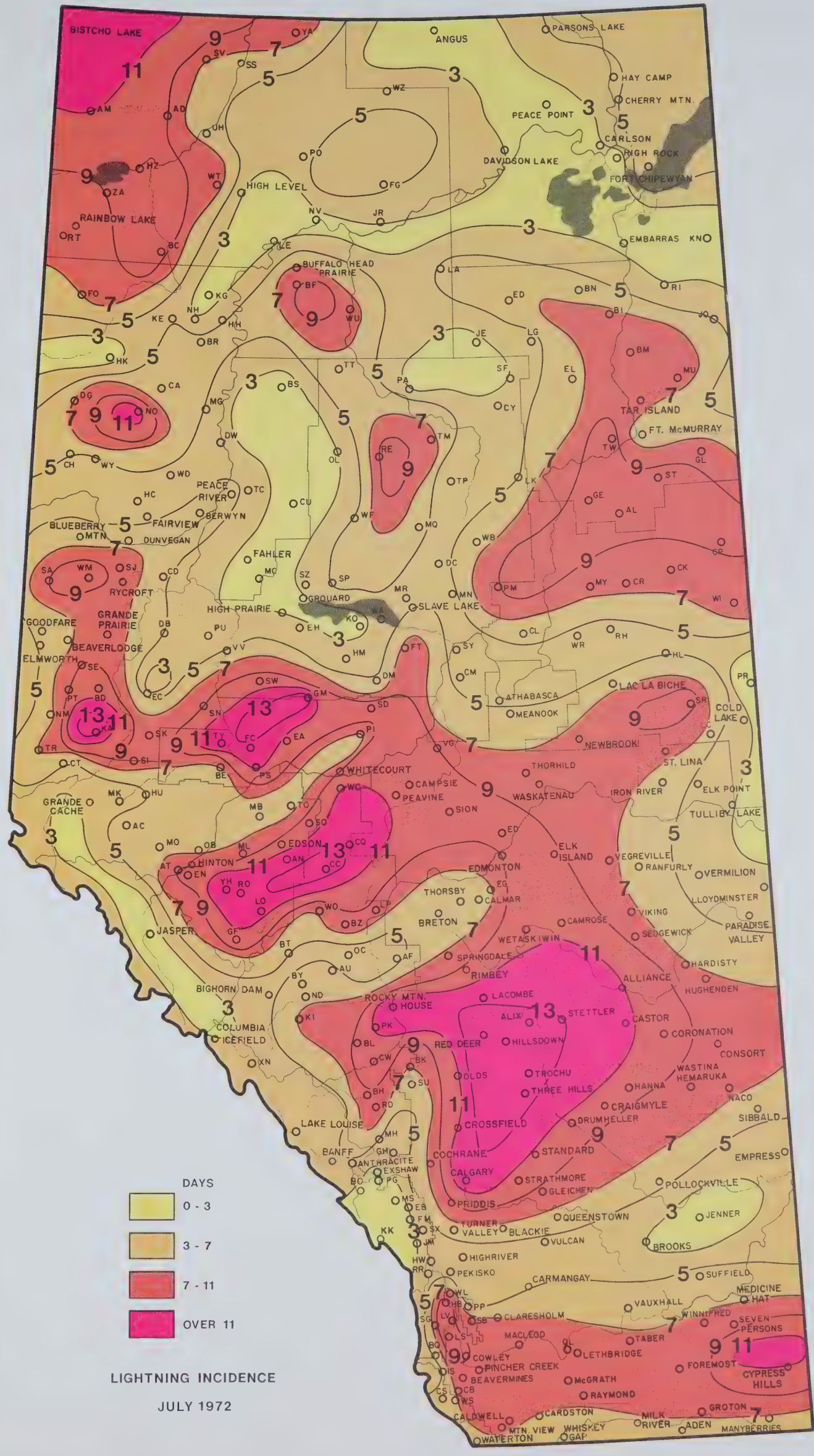
ATHABASCA FOREST: Consistent with previous months, the maximum swath of 7-9 lightning days lay along the Athabasca River valley. Upstream, the Birch Mountains had only 3-5 days although Birch Mountain Lookout was higher at 7 days. The Lake Athabasca area had only 5 days.

NATIONAL PARKS: Jasper received only 3 days of lightning with Banff close at 4 days. Western Wood Buffalo Park was low at 3 days but the Athabasca Delta area rose slightly to 5 days.

AGRICULTURAL PLAINS AREA: The intensification of thunderstorms in their eastward progression from the Rockies onto the Plains is again strikingly obvious. Maxima of 13 lightning days occurred over the Cold Creek area and the Red Deer - Stettler "Hail Belt" zone. A secondary maximum spread from Pincher Creek to Cypress Hills where 11 lightning days occurred. Although farmer hail reports were considerably below average for July, several storms did occur on July 8th, 23rd and 28th. The most severe ones occurred on July 28th when tornadoes demolished farm property and some loss of life occurred near Camrose.

ALBERTA ELECTRIC SPOTS: 13 days at Red Deer - Stettler, Carrot Creek and Goose Mountain Lookouts, Whitecourt Forest, and Kakwa Lookout, Grande Prairie.

ALBERTA QUIET SPOT: Numerous (see map).



LIGHTNING SUMMARY FOR AUGUST, 1972

CROWSNEST - BOW RIVER - ROCKY FORESTS: Lightning activity over these southern Forests peaked in August and occurred further west, the centre of the forests receiving just as much as the eastern fringes. A peak of 14 days occurred in the Crowsnest Forest, 11 over Rocky Forest with lower frequencies over the Bow River Forest. Near Rocky Mountain House townsite lightning frequency was heavy, occurring on 14 days.

EDSON - WHITECOURT FORESTS: Almost an exact duplication of the July lightning frequency, activity near Grande Cache was low at 5 days increasing sharply eastward to maxima of 11-13 days over the Swan Hills and Cold Creek areas.

GRANDE PRAIRIE FOREST: The August pattern was essentially a repeat of the July pattern, increasing from 5 days near the Divide to a peak of 11 days over the Kakwa area. The secondary maximum over the Saddle Hills - White Mountain area was also preserved.

PEACE RIVER FOREST: A peak of 9 lightning days jutted along the confluence of major river systems at the Peace River townsite. Most of the Forest received only 3-5 days of activity, however.

FOOTNER LAKE FOREST: The northern sector was heavily dominant with 7-9 days sweeping in from Bistcho Lake to Yates. The remainder of the Forest received only 3-5 days of lightning.

SLAVE LAKE FOREST: Again the higher terrain of northern Swan Hills and the contrasting lower, flatter terrain of Red Earth received the most activity from 7-11 days. The remainder of the Forest was sharply lower at 3-5 days.

LAC LA BICHE FOREST: The northwestern and southeastern sectors were highest with 9-11 days and the remainder of the Forest lowest with only 3-5 days. The traditional swath from Pelican Mountain to Grande - Algar area repeated itself.

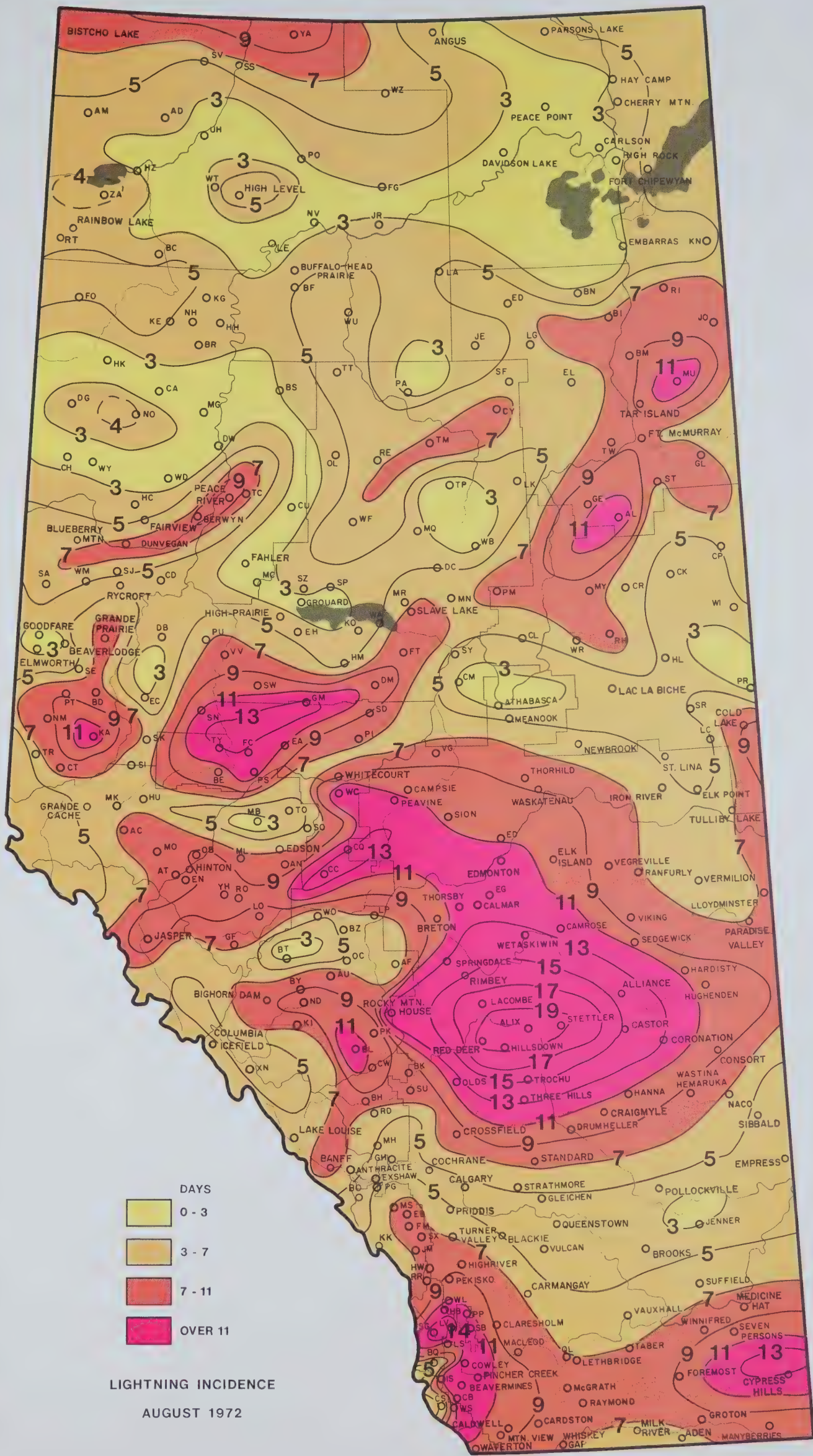
ATHABASCA FOREST: August was no different from June and July. A heavy maximum of 11 days ran from Grande - Algar to Bitumont - Muskeg. Again the Birch Mountains were radically lower at 3-7 days.

NATIONAL PARKS: Jasper received 9 lightning days and Banff 7 days, by far their summer peak. Wood Buffalo at 3-5 days imitated July closely but was down from the June peak of 5-7 days.

AGRICULTURAL PLAINS AREA: A strong, solid summer peak for lightning activity. The Hail Belt area around Red Deer - Stettler was struck on 19 days. Lesser maxima of 13 at Cold Creek and Cypress Hills, and 11-13 days near Pincher Creek were recorded. Severe hailstorms occurred on August 8th, 9th, 10th and 11th. On August 10th a very severe storm crossed Pigeon Lake while the most widespread hail activity of the summer occurred on August 11th when a series of very heavy storms battered the area between Edmonton and Red Deer.

ALBERTA ELECTRIC SPOT: 19 days at Red Deer - Stettler.

ALBERTA QUIET SPOTS: Numerous (see maps).



LIGHTNING SUMMARY FOR SEPTEMBER, 1972

CROWSNEST - BOW RIVER - ROCKY FORESTS: With no lightning observed over the Rockies and for only 1 day along the eastern fringes of the Forests, the 1972 lightning season abruptly ended.

EDSON - WHITECOURT FORESTS: Starting with no lightning in the Grande Cache area, the usual pattern recurred with a rapid rise to 5-7 days over the Swan Hills and Cold Creek areas. This was indeed a respectable showing for September.

GRANDE PRAIRIE FOREST: From a low of 1 lightning day reported near the Divide, there was an increase to 4 lightning days near the Valley-view area.

PEACE RIVER FOREST: With no lightning over most of the forest and only 1 day over the extreme northeastern fringe, the lightning season obviously ended.

FOOTNER LAKE FOREST: Watt Mountain near High Level recorded 3 lightning days with a symmetrical tapering off to only 1 lightning day over the remainder of the Forest.

SLAVE LAKE FOREST: Lightning frequency was rather feeble with only 1 day over half of the Forest and zero over the remainder.

LAC LA BICHE FOREST: With absolutely no lightning reported throughout the entire Forest, the lightning season was definitely over!

ATHABASCA FOREST: Only the northeastern corner reported any lightning incidence and even this was only 1 day. No lightning occurred over the remainder of the Forest.

NATIONAL PARKS: There were 2 lightning days observed at Jasper but only 1 at Banff. Essentially no lightning occurred over Wood Buffalo National Park.

AGRICULTURAL PLAINS AREA: No lightning was reported over the area from Pincher Creek to the Cypress Hills and none was reported from Whitecourt to Elk Point, either. The central portion of the plains area received 3 lightning days around Wetaskiwin and 4 days around Calgary.

ALBERTA ELECTRIC SPOTS: 4 days at Calgary and Puskwaskau Lookout, Grande Prairie Forest.

ALBERTA QUIET SPOTS: Numerous (see map).



LIGHTNING INCIDENCE
SEPTEMBER 1972

CUMULATIVE LIGHTNING SUMMARY, MAY TO SEPTEMBER, 1972

CROWSNEST - BOW RIVER - ROCKY FORESTS: A well-defined "lightning shadow" over the Continental Divide is immediately evident. Only about 15 days of lightning occurred here during the entire season. The eastern fringes received about 10 more lightning days. The very narrow nature of the Crowsnest Forest makes it difficult to assess a lightning increase eastward but it, too, likely follows the pattern over Bow River and Rocky Forests.

EDSON - WHITECOURT FORESTS: Again there is a well-defined "lightning shadow" along the Divide with obvious eastward intensification of convective growth. Maxima of 40 lightning days were observed over the Cold Creek eastern fringe of Edson Forest and the Swan Hills of Whitecourt Forest.

GRANDE PRAIRIE FOREST: Only 15 lightning days were reported in the "lightning shadow" area of Torrens - Nose Mountain with a rapid increase to 30 lightning days at Kakwa, a mere 30 miles further east. Similar maxima occurred near Grande Prairie townsite and over the Saddle Hills area.

PEACE RIVER FOREST: A pronounced maximum of 25 lightning days was recorded over Peace River townsite, located at the confluence of major river systems. Secondary maxima occurred over Notikewin and the Fontas - Keg - Basset triangle. Lesser frequencies were observed elsewhere.

FOOTNER LAKE FOREST: Maxima occurred over the Bistcho Lake, Yates, Watt Mountain, Basset and Wadlin areas. The lowest frequencies occurred in the La Crete, Fort Vermilion, Jean D'or valley areas.

SLAVE LAKE FOREST: Red Earth stands out boldly with 28 lightning days. A similar 28 day maximum occurred at Sweathouse. Much lower frequencies of 15 days are evident in the High Prairie, Smith, and Chipewyan Lakes areas.

LAC LA BICHE FOREST: Maxima of 25 lightning days at Pelican, May, and Sand River are obvious. Minima of 15 days or less are equally evident in the Athabasca townsite and Primrose areas.

ATHABASCA FOREST: The pattern varied from a minimum of 15 lightning days over Jean Lake to pronounced maxima of 30-35 days at Grande - Algar and Tar Island - Muskeg.

NATIONAL PARKS: Lightning frequency was lowest in Wood Buffalo with 10 days, slightly higher in Banff with 15 days, and highest in Jasper with 20 days.

AGRICULTURAL PLAINS AREA: The Red Deer - Stettler "Hail Belt" stands out strikingly with 50 lightning days observed during the season. This drops to a mere 10-15 days in the Brooks - Empress areas but increases sharply to 28 days over Lethbridge and 35 days near the Cypress Hills. Edmonton and Calgary frequencies are similar with about 30 days. Generally the eastern plains area frequencies suggest the decay of intense storms as they leave the prime "Hail Belt" area.

ALBERTA CUMULATIVE ELECTRIC SPOT: 50 at Red Deer.

ALBERTA CUMULATIVE QUIET SPOTS: Numerous areas with only 10 days (see map).

